



## **Innovative Free Product Recovery in Harlowton, Montana**

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The Magnum Spill Buster™ by Clean Earth Technology, Inc. was selected to recover light non-aqueous phase liquids (LNAPL) consisting of a mixture of floating gasoline and diesel at the Harlowton Area Wide Petroleum Release Site in Harlowton, Montana. The LNAPL plume is in a fractured bedrock aquifer at a depth of approximately 35 feet below ground surface. The source(s) of the contamination has not yet been identified. Three Magnum Spill Buster assemblies consisting of a product probe, Auto Seeker reel assembly and a processor control box were installed in October 2013, in product recovery wells to address the extensive LNAPL plume.

The 1.93" diameter product probe contains interface sensors, as well as a modified off the shelf diesel fuel pump. With a diameter of 1.93 inches, the probe is designed to fit in 2 inch diameter recovery wells. The Auto Seeker is a small, motorized, reel assembly that automatically raises and lowers the probe to follow the LNAPL interface through the entire depth of the well. The Magnum Spill Buster™ control box coordinates and displays the condition of the system operation.

The interface sensor in the probe detects the product/water interface and sends a signal to the control box. The control box activates the Auto Seeker reel and positions the probe in the well so it remains just above the LNAPL interface. Since the probe and pump inlet are positioned above the LNAPL interface, very little water is pumped potentially reducing product disposal costs.

There are several compelling reasons to consider using the Magnum Spill Buster system:

- Rapid removal of LNAPL - each pump is capable of pumping up to 46 gallons an hour.
- Automatically adjusts the position of the probe to account for changing interface levels.
- Reduces or eliminates line freeze up. Very little water is pumped so line freeze ups are not problematic.
- Low utility costs – the electric bill for the 3 pump recovery system that was installed in Harlowton is ~\$125 annually.

- Product probe fit inside 2" wells – don't have to install larger diameter wells.

The Magnum Spill Busters worked exceedingly well. After a little more than a year of operation, the system recovered over 18,000 gallons of LNAPL and the thickness of the LNAPL plume has substantially decreased.

### Project photos



Auto Seeker Reel Assembly



Reel Assembly in protective vault



Product probe